

PATENT ABSTRACTS OF JAPAN

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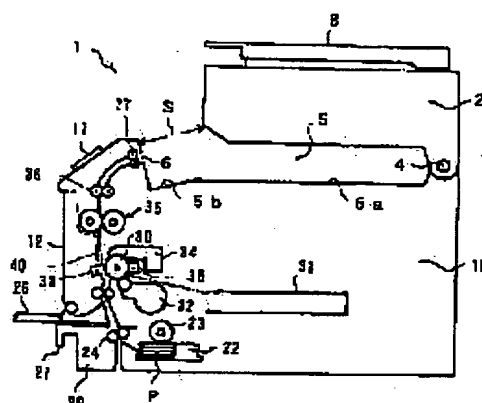
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(54) IMAGE FORMATION DEVICE

(57)Abstract:

PROBLEM TO BE SOLVED: To miniaturize a device whole body, while reducing the installation space of the device.

SOLUTION: This image formation device is provided with an image formation part which forms an image on a paper sheet so as to set it to recording paper, a recording paper discharge means which discharges the recording paper having the image formed on the image formation part, a recording paper discharge part 5 which is provided in the upper part of the image formation part and stores the recording paper discharged by the recording paper discharge means, and an image read-out part 2 which is provided in the upper part of the recording paper discharge part 5, reads out the image on a document, converts the read-out image information into digital signals, and feeds them to the image formation part; and the image read-out part 2 and the device main body having the image formation part in its inside are set to an approximately same size.



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CLAIMS

[Claim(s)]

[Claim 1] The image formation section which forms an image in a form and is used as the recording paper, and a recording paper discharge means to discharge the recording paper with which the image was formed in said image formation section, While being prepared above said image formation section, being prepared above the recording paper discharge section which holds the recording paper discharged with said recording paper discharge means, and said recording paper discharge section and reading the image of a manuscript Image formation equipment characterized by the body of equipment which is equipped with the image read station which changes the read image information into a digital signal, and supplies said image formation section, and has said image read station and said image formation section inside being abbreviation Doshisha University.

[Claim 2] Image formation equipment characterized by being the manuscript cover-half image read station where said image read station has the original-cover section in image formation equipment according to claim 1.

[Claim 3] Image formation equipment characterized by making the open section for ejection provide the recording paper which said image formation section is prepared caudad, has the feed means constituted possible [insertion on the body of equipment] in image formation equipment according to claim 1, and was wide opened by said recording paper discharge section in the path of insertion of said feed means.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the image formation equipment of a digital method, and relates to amelioration of the image formation equipment which has arranged the recording paper discharge section between an image read station and the image formation section especially.

[0002]

[Description of the Prior Art] As image formation equipment of the digital method in the former, the recording paper discharge section is prepared, for example above the image formation sections, such as an electrophotography method, and the mode which arranged the manuscript migration mold image read station above this recording paper discharge section is already known further (for example, refer to JP,3-120125,A). According to this mode, compared with the mode (for example, refer to JP,62-131668,A) which has projected and arranged the discharge tray as the recording paper discharge section to the side of the body of equipment, there is an advantage that the installation tooth space of equipment can be reduced.

[0003]

[Problem(s) to be Solved by the Invention] However, if it is in this kind of image formation equipment, there are no clear criteria from what kind of viewpoint miniaturization of the whole equipment should be realized, further, and it has been the technical technical problem in which how it realizes efficiently should solve miniaturization of the whole equipment.

[0004] This invention offers the image formation equipment which was made to realize miniaturization of the whole equipment efficiently, aiming at [are made in order to solve the above technical technical problem, and] reduction of the installation tooth space of equipment.

[0005]

[Means for Solving the Problem] Namely, the image formation section which this invention forms an image in a form and is used as the recording paper, A recording paper discharge means to discharge the recording paper with which the image was formed in said image formation section, While being prepared above said image formation section, being prepared above the recording paper discharge section which holds the recording paper discharged with said recording paper discharge means, and said recording paper discharge section and reading the image of a manuscript It has the image read station which changes the read image information into a digital signal, and supplies said image formation section, and is characterized by the body of equipment which has said image read station and said image formation section inside being abbreviation Doshisha University.

[0006] Although the configuration of an image read station is selected suitably and it does not interfere in such technical means, if a manuscript migration mold image read station has ** The class of manuscript to ** Treat which distortion of the image by the skew of a manuscript etc. tends to produce will be restricted to a sheet-like thing. Since various kinds of technical technical problems that there is a possibility that a stripe may appear in an image if dust etc. adheres to ** image read station which cannot respond to thick manuscripts, such as a book, easily are included, If it carries out from a viewpoint of canceling these technical technical problems, it is desirable that he is the manuscript cover-half image read station which has the original-cover section.

[0007] Moreover, it is desirable to make the open section for the recording paper ejection which the image formation section was prepared caudad, and was wide opened by the recording paper discharge section in the path of insertion of a feed means when carrying out from a viewpoint of keeping the ejection workability of the recording paper good, in the mode equipped with the feed means constituted possible [insertion] by the body

of equipment provide.

[0008]

[Embodiment of the Invention] The image formation equipment of this invention is explained according to the gestalt of the operation illustrated. The image formation equipment 1 concerning the gestalt of this operation is constituted as equipment in the condition of having piled up the image read station 2 and the recording paper creation section 10, forms the recording paper discharge section 5 among both equipments, and he is trying to make the recording paper discharge, as shown in drawing 1 . In said image read station 2, like the case of a common image reader, a manuscript is set to the upper part of the body of equipment, the device which scans the image of a manuscript is established, and the platen covering 3 for carrying out press maintenance of the manuscript is formed. Moreover, said image read station 2 is supported through the hinge 4 to the detail-paper creation section 10 arranged at the lower part, turns the image read station 2 back, and enables it to make it rocked through this hinge 4.

[0009] It is made for the detail paper creation section 10 arranged at the lower part of said image read station 2 to have the jam paper in the maintenance to each internal device , and the form conveyance way 40 within the body of equipment processed by constituting the front frame 12 side of the body of equipment possible [closing motion] through a hinge 13 , and opening this front frame 12 . Moreover, the opening 15 for inserting the feed unit 20 in said front frame 12 is formed, and it is constituted so that the feed unit 20 can be detached and attached from said opening 15. Furthermore, a control panel 11 can be arranged to the position of said recording paper creation section 10, and actuation with the image read station 2 and the recording paper creation section 10 can be controlled.

[0010] In the image formation equipment 1 concerning the gestalt of this operation mentioned above, as shown in drawing 2 and drawing 3 , the recording paper creation section 10 can be constituted. That is, in the image formation section arranged inside said recording paper creation section 10, like the case of a general laser beam printer, it writes in to the photo conductor drum 30, and equipment 31 is arranged, and a laser beam is made to output, the laser beam is irradiated at the photo conductor drum 30, and it is made to write in an image with the digital signal inputted from the image read station 2. Moreover, around said photo conductor drum 30, the electrification machine 38, a developer 32 and the imprint corotron 33, and cleaning equipment 34 are arranged like the case of the image formation device which used the electrophotography method. And the photo conductor drum 30 is uniformly electrified with the electrification vessel 38, it writes in with write-in equipment 31, and an electrostatic latent image is formed, a toner is supplied from a developer 32 to the electrostatic latent image, a toner image is formed, and it is made to make a form imprint the toner image by discharge of the imprint corotron 33.

[0011] In order to send a form towards said image formation section, in said recording paper creation section 10, the method which equips the lower part of the body of equipment with the feed unit 20 is used, a handle 21 is arranged to a before [said feed unit 20] side, and form hold equipment 22 is equipped with Form P. Moreover, conveyance roller equipment 24 is arranged into the part connected to the form feed hopper located in the lower limit of the form conveyance way 40 within the body of equipment, and the form P sent out with the feed roller 23 is turned to the form conveyance way 40 of the body of equipment, and it is made to make it convey to said feed unit 20. It connects with the support means and drive which omitted illustration, and it is in the condition which equipped the recording paper creation section 10 with form hold equipment 22, the feed roller 23 is pressed by the edge of Form P, and the feed roller 23 for sending out Form P from said form hold equipment 22 may have the send of Form P be made to be operated.

[0012] In addition, the equipment of the configuration of arbitration can be used as said form hold equipment 22, and the means made to act only as form hold equipment can also be used besides the device which formed conveyance roller equipment 24 in the sheet paper cassette like [in the case of the conventional general sheet paper cassette or a medium tray]. Furthermore, in the recording paper creation section 10, a detachable tray 26 can be arranged in the front section of the body of equipment other than the feed means by said feed unit 20, and Form P can be turned and sent into the form conveyance way 40 using the feed roller 27.

[0013] Furthermore, the anchorage device 35 is formed in the form conveyance way 40 located in the downstream of the imprint part of the image formation section, conveyance roller equipment 36 and the discharge roller 37 are formed in the form conveyance way 40 of this anchorage device 35 further located in the downstream, and the upper limit of the form conveyance way 40 has become the recording paper exhaust port 6.

Conveyance roller equipment 36, the discharge roller 37, and the recording paper exhaust port 6 constitute the recording paper discharge means of this invention from this example.

[0014] In the example shown in said drawing 2 moreover, between the image read station 2 and the recording paper creation section 10 The space section used as the recording paper discharge section 5 is formed. With the gestalt of this operation It is projected and arranged, and said recording paper discharge section 5 inserts a hand from the part of the tooth space S formed in a front-side, and enables it to take out the recording paper from said image read station 2 between the image read station 2 and the recording paper creation section 10 to this recording paper discharge section 5. In addition, as shown in said drawing 1 , when it constitutes as a device in which opening of the part of the recording paper discharge section 5 was carried out also to the flank, the recording paper can be taken out also from the flank of the body of equipment. furthermore, the part of said tooth space S is constituted as a tooth space which leads even to a front-side from the rear-side of the body of equipment -- having -- **** -- said tooth space S -- receiving -- right and left of the body of equipment -- either can also insert a hand and can take out the recording paper.

[0015] Furthermore, with the gestalt of this operation, as shown in drawing 1 and drawing 2 , said recording paper discharge section 5 has recording paper installation side 5a, and forms in the recording paper exhaust port 6 side of this recording paper installation side 5a concave 5b of the letter of the abbreviation for V characters which consists of other parts low.

[0016] As it mentioned above, the form P sent out towards the form conveyance way 40 within the body of equipment of the feed section (the feed unit 20 or detachable tray 26) to the recording paper creation section 10 doubles the timing of the point of Form P, and the toner image formed in the photo conductor drum 30, and is sent out by REJIROA 25 arranged at the direct anterior part of the image imprint section (imprint corotron 33) from the photo conductor drum 30. And by discharge of the imprint corotron 33, a toner image is imprinted in Form P, the form P which supports the toner image is established through an anchorage device 35, the recording paper is created, and it is made to make it discharge towards the recording paper discharge section 5 through conveyance roller equipment 36 and the discharge roller 37 from the recording paper exhaust port 6.

[0017] And although sequential installation of the recording paper discharged by the recording paper discharge section 5 is carried out at recording paper installation side 5a Since concave 5b of the letter of the abbreviation for V characters is formed in the recording paper exhaust port 6 side among recording paper installation side 5a, the discharge back end section of the recording paper moves to said concave 5b side automatically by self-weight, and where the discharge back end section of the recording paper is arranged with concave 5b, the recording paper is held in the recording paper discharge section 5. For this reason, a hand can be inserted from the part of the tooth space S formed in a front-side, and the recording paper can be taken out easily. Furthermore, in the gestalt of this operation, if the image read station 2 is made to rock back through a hinge 4, since the upper part of the recording paper discharge section 5 will be opened wide completely, it is also possible to take out the recording paper more simply.

[0018] Moreover, the member of the front-side of the form conveyance way 40 is prepared in the front frame 12, and it is made to constitute from the recording paper creation section 10 shown in said drawing 3 so that this front frame 12 may be opened from the body of equipment. And as mentioned above, when performing processing when a jam arises in the form conveyance way 40 by constituting possible [closing motion of the front frame 12 of the body of equipment], and the maintenance to each device of image formation equipment, an activity can be done from the front-side of equipment. Furthermore, by constituting the device which pulls out each configuration member arranged inside the recording paper creation section 10 to a front-side, members, such as it, can be pulled out outside the plane and check etc. can also be performed.

[0019] Moreover, as shown in said drawing 1 , to the recording paper discharge section 5 which holds the recording paper, a hand can be inserted from a front-side and a both-sides flank, and it can replace with constituting so that the recording paper can be taken out, and can constitute from a gestalt of other operations of this invention as equipment as shown in drawing 4 . It starts to the flank of the both sides of the recording paper creation section 10, the sections 7 and 8 are arranged, the recording paper exhaust port 6 is formed in the standup section 7 of one of these, the recording paper created in the recording paper creation section 10 is turned to the recording paper discharge section 5, and it is made to make it discharge in image formation equipment 1a shown in said drawing 4 . Moreover, the image read station 2 supported by the upper part of the recording paper creation section 10 constitutes as equipment which turns and outputs the information which

scanned the manuscript as well as the case of the equipment shown in said drawing 1 to the recording paper creation section 10 as digital information.

[0020] And also in image formation equipment 1a shown in said drawing 4, the device in which a rear-side is made to rock the image read station 2 through a hinge 4 can be established, and it can constitute possible [closing motion of the front frame 12]. Moreover, it is also possible to be able to prepare the insertion opening 15 grade of a control panel 11 and the feed unit 20 in the front-side of said recording paper creation section 10, and to arrange a detachable tray etc. to the front frame 12 to it if needed. Therefore, also in the example shown in said drawing 4, a maintenance etc. can be performed from the front-side of equipment to each device of the electrophotography method arranged inside the recording paper creation section 10.

[0021] Moreover, the image formation equipment of this invention as shown in drawing 5 with the gestalt of other operations can also be constituted further. In image formation equipment 1b shown in said drawing 5, in the upper part of the body of equipment containing the detail-paper creation section 10, press maintenance of the manuscript was carried out with the platen covering 3, and the image read station 2 which performs read of an image is stationed. Especially, with the gestalt of this operation, since the body of equipment which has said image read station 2 and said image formation section inside is constituted by abbreviation Doshisha University, the whole equipment is compact. Moreover, opening of the recording paper discharge section 5 is prepared in the lower part of said image read station 2. Furthermore, the lower part of the body of equipment is equipped with the feed unit 20, it lets the form conveyance way which has arranged the form to the flank of the body of equipment pass, and the toner image formed in the photo conductor drum is imprinted in a form, and it is established through an anchorage device and made to make the recording paper discharge section 5 discharge the form which supports the toner image. With the gestalt of this operation, since especially opening of the recording paper discharge section 5 is opened wide in the path of insertion of the feed unit 20, it can do easily exchange of the feed unit 20, and the ejection activity of the recording paper from the recording paper discharge section 5 from the same side.

[0022] In case the closing motion frame 12 is opened and closed, and processing of a jam etc. is performed when a form conveyance way and the image formation section have been arranged to the flank of the body of equipment as shown in said drawing 5, jam processing and the maintenance of equipment can be performed only from the transverse plane of equipment like the image formation equipment shown in said drawing 1 or drawing 4. However, the tooth space where image formation equipment occupies a discharge tray as compared with the image formation equipment which makes a flank project can be made small by constituting image formation equipment 1b, as shown in said drawing 5. Furthermore, since it can constitute comparatively small, said image formation equipment 1b is image formation equipments, such as a copying machine, and when a jam is generated on a form conveyance way or it performs the maintenance to equipment, it can also perform moving this equipment easily. Therefore, when opening the closing motion frame 12 arranged to the flank of the body of equipment, even if there is inconvenient [some], in the state of anticipated use, it does not become a big problem.

[0023] As shown in said drawing 1 or drawing 5, the recording paper discharge section 5 can be arranged in the center section of image formation equipment, and the image formation equipment which constitutes and becomes so that ejection of the recording paper can be performed from a front-side to this recording paper discharge section 5 can be used also as the laser beam printer using the digital function other than using as an electronic copying machine, or facsimile. if it establishes the device of for example, an electronic copying machine and facsimile in which a manuscript is automatically sent to the image read station 2 in constituting the equipment which compounded the function -- the case of common facsimile -- the same -- many -- the function to transmit the manuscript of several sheets continuously can be given. Furthermore, when establishing attachment with equipments, such as a computer, to said compound machine, it can be used also as a laser beam printer. And even when the image formation equipment which gave such various functions has been arranged in the condition of having made it close to a computer or other equipments, the recording paper can be taken out from a front-side and the activity of a maintenance of equipment can also be done only from a front-side.

[0024]

[Effect of the Invention] Miniaturization of the whole equipment is easily realizable, aiming at reduction of the installation tooth space of equipment, since the body of equipment which prepares the recording paper discharge section between an image read station and the image formation section, and has an image read station

and the image formation section inside was made into abbreviation Doshisha University according to this invention as stated above.

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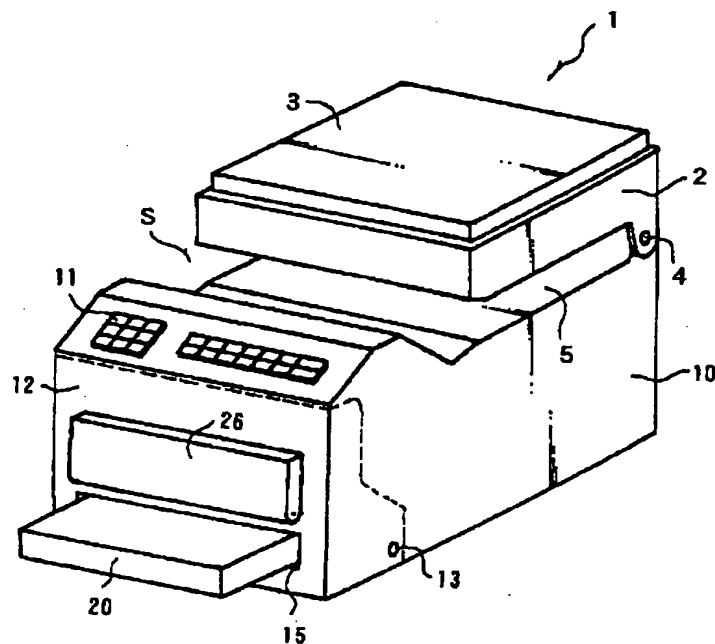
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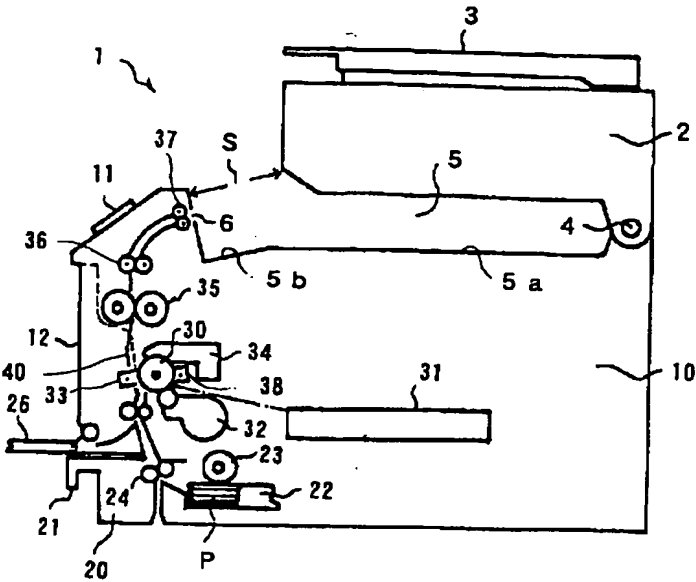
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DRAWINGS

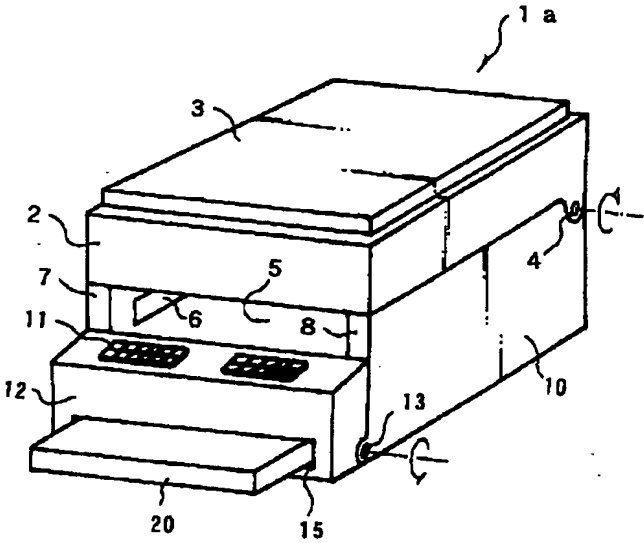
[Drawing 1]



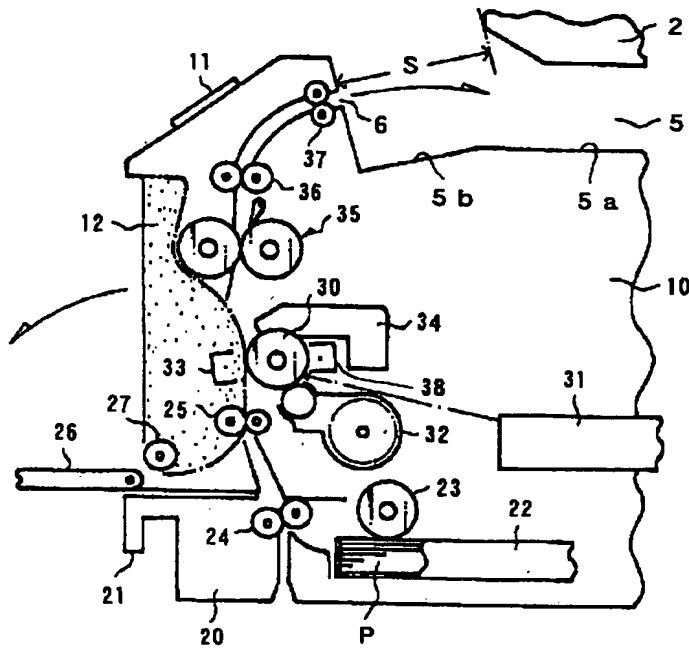
[Drawing 2]



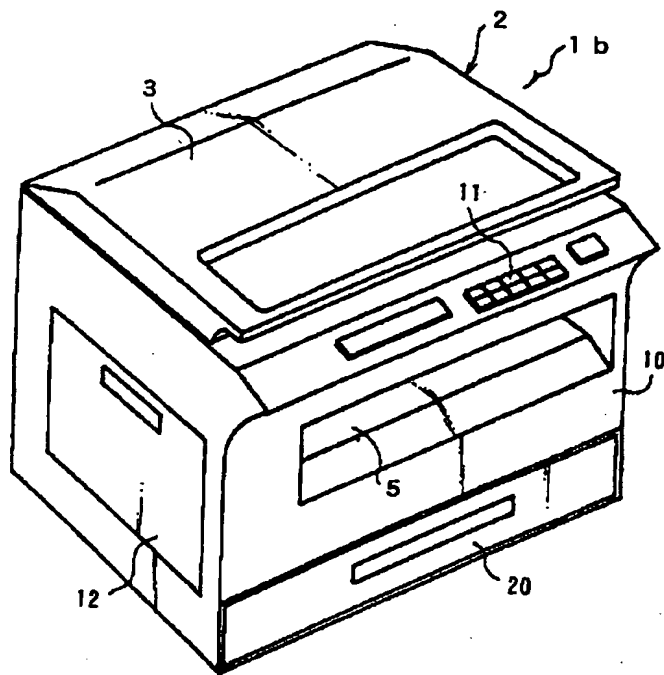
[Drawing 4]



[Drawing 3]



[Drawing 5]



[Translation done.]